In the Claims:

Please add the following new claims:

31. (New) A method of characterizing a coded object having a plurality of regions, the method comprising:

comparing a luminosity value of a first region of the coded object to a luminosity value of a second region of the coded object, wherein the second region's color is known; and

determining the first region's color based on the comparison of the first and second region's luminosity values.

32. (New) A method as recited in claim 31, further comprising:

comparing luminosity values of all other regions of the coded object to the second region's luminosity value;

determining each region's color based on the comparison of each region's luminosity value to the second region's luminosity value, wherein the plurality of region colors form a pattern; and

matching the pattern of region colors to a known coded object's pattern of region colors to thereby determine the coded object's identity.

33. (New) A method as recited in claim 31, wherein

the second region's color is known to be white,

it is determined that the first region's color is white when the first region's luminosity value is not less than the second region's luminosity value by more than a predetermined constant k, and

it is determined that the first region's color is black when the first region's luminosity value is less than the second region's luminosity value by more than a predetermined value.

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34. (New) A method as recited in claim 33, further comprising selecting the second region from two reference regions that are known to be white, the reference region having the highest luminosity value of the two reference regions being selected as the second region.

35. (New) A method as recited in claim 34, further comprising:

comparing the first region's luminosity value to the nonselected reference region,

wherein it is only determined that the first region's color is black when the first region's luminosity value is also less than the nonselected reference region's luminosity value.

36. (New) A method as recited in claim 31, wherein

the second region's color is known to be black,

it is determined that the first region's color is white when the first region's luminosity value is greater than the second region's luminosity value by more than a predetermined value, and

it is determined that the first region's color is black when the first region's luminosity value is not greater than the second region's luminosity value by more than a predetermined value.

37. (New) A method as recited in claim 33, further comprising selecting the second region from two reference regions that are known to be black, the reference region having the lowest luminosity value of the two reference regions being selected as the second region.

38. (New) A method as recited in claim 34, further comprising:

comparing the first region's luminosity value to the nonselected reference region,

wherein it is only determined that the first region's color is white when the first region's luminosity value is also greater than the nonselected reference region's luminosity value.

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39. (New) A method as recited in claim 31, wherein

the first region's color is known to be selected from a group consisting of black and white and the second region's color is known to be an opposite of the first region's color,

it is determined that the first region's color is black when the first region's luminosity value is not greater than the second region's luminosity value, and

it is determined that the first region's color is white when the first region's luminosity value is greater than the second region's luminosity value.

40. (New) A method as recited in claim 31, further comprising:

comparing the first region's luminosity value to a luminosity value of a third region of the coded object, wherein the third region's color is known,

wherein the second region's color is known to be white and the third region's color is known to be black,

it is determined that the first region's color is black when a difference between the luminosity values of the first and second regions is greater than a difference between the luminosity values of the first and third regions, and

it is determined that the first region's color is white when a difference between the luminosity values of the first and second regions is not greater than a difference between the luminosity values of the first and third regions.

41. (New) A method of characterizing a coded object having a first region, the first region having a first subregion having a first color and a second subregion having second color that differs from the first color, wherein the first subregion is movable over a portion of the second subregion, the method comprising:

when the second subregion has a white color, comparing the first regions luminosity values at a plurality of positions and defining the first subregion's position as the position of the minimum luminosity value within the first region; and

when the second subregion has a black color, comparing the first regions luminosity values at a plurality of positions and defining the first subregion's position as the position of the maximum luminosity value within the first region.

A1 cont.

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42. (New) A method of characterizing a coded object having a white region and a black region, the first and second regions being substantially adjacent, an object being partially within the first region and partially within the second region, the object portion within the first region being white, the object portion within the second region being black, the method comprising:

subtracting luminosity values of the white region from luminosity values of the black region at a plurality of positions; and

defining the object's position as the position of the luminosity value pair that has a minimum difference.

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43. (New) A method of characterizing a coded object having a first region and a second region, the first region a majority of subregions with a first color and the second regions having a majority of subregions with a second color that differs from the first color, the method comprising:

(a) comparing luminosity values of a selected subregion within the first region to each subregion within the second region;

(b) when a number of luminosity values of the subregions within the second region differ from a luminosity value of the selected subregion by more than a predetermined value, defining the selected subregion as a reference subregion; and

(c) when a number of luminosity values of the subregions within the second region does not differ from a luminosity value of the selected subregion by more than a predetermined value, selected a next subregion within the first region and repeating steps (a) and (b) if there is a next subregion within the first region.

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44. (New) A method as recited in claim 43, further comprising when there is not a next subregion within the first region, defining a third and fourth region within the coded object as the first and second regions and repeating steps (a) through (c).

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45. (New) A coded object comprising a plurality of bit objects that each have at least a first region adjacent to a second region, the first region having a different color than the second region, and the relative positions of the first and second region's color for each of the bit object indicating an identity of the coded object.

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46. (New) A coded object as recited in claim 45, further comprising a center object having a predefined color so that the coded object's presence is detectable via the center object.

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47. (New) A coded object as recited in claim 46, further comprising a reference object by which the coded object's orientation is determinable from the center object's and reference object's relative positions.

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48. (New) A coded object as recited in claim 47, wherein the center object, the subregions of the bit objects, and the reference objects' colors are selected from a group consisting of black and white.

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49. (New) A coded object as recited in claim 45, wherein the subregions of the bit objects' colors are selected from a group consisting of black and white.

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50. (New) A coded object as recited in claim 45, further comprising a movable object that is capable of being moved over a third region of the coded object, the movable object's color being different than the third region's color to facilitate determination of the movable object's position relative to the third region.

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51. (New) A coded object as recited in claim 50, wherein the subregions of the bit objects and the movable objects' colors are selected from a group consisting of black and white.

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52. (New) A coded object as recited in claim 51, wherein half of the movable object is white and another half of the movable object is black, the white half of the movable object being movable over a black half of the third region and the black half of the movable object being movable over a white half of the third region.

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53. (New) A coded object as recited in claim 50, wherein a first half of the movable object is movable over a first half of the third region having a same color as a second half of the movable object, the second half of the movable object being movable over a second half of the third region that has a same color as the first half of the movable object.

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54. (New) A computer readable medium containing instructions for characterizing a coded object having a plurality of regions, the computer readable medium comprising:

computer code for comparing a luminosity value of a first region of the coded object to a luminosity value of a second region of the coded object, wherein the second region's color is known; and

computer code for determining the first region's color based on the comparison of the first and second region's luminosity values.

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55. (New) A computer readable medium as recited in claim 54, wherein

the second region's color is known to be white,

it is determined that the first region's color is white when the first region's luminosity value is not less than the second region's luminosity value by more than a predetermined constant k, and

it is determined that the first region's color is black when the first region's luminosity value is less than the second region's luminosity value by more than a predetermined value.

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56. (New) A computer readable medium as recited in claim 55, the computer readable medium further comprising computer code for selecting the second region from two reference regions that are known to be white, the reference region having the highest luminosity value of the two reference regions being selected as the second region.

A1 cont.

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57. (New) A computer readable medium as recited in claim 56, the computer readable medium further comprising:

computer code for comparing the first region's luminosity value to the nonselected reference region,

wherein it is only determined that the first region's color is black when the first region's luminosity value is also less than the nonselected reference region's luminosity value.

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58. (New) A computer readable medium as recited in claim 54, wherein

the first region's color is known to be selected from a group consisting of black and white and the second region's color is known to be an opposite of the first region's color,

it is determined that the first region's color is black when the first region's luminosity value is not greater than the second region's luminosity value, and

it is determined that the first region's color is white when the first region's luminosity value is greater than the second region's luminosity value.

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59. (New) A computer readable medium as recited in claim 54, the computer readable medium further comprising:

computer code for comparing the first region's luminosity value to a luminosity value of a third region of the coded object, wherein the third region's color is known,

wherein the second region's color is known to be white and the third region's color is known to be black,

it is determined that the first region's color is black when a difference between the luminosity values of the first and second regions is greater than a difference between the luminosity values of the first and third regions, and

it is determined that the first region's color is white when a difference between the luminosity values of the first and second regions is not greater than a difference between the luminosity values of the first and third regions.

AM cont.

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60. (New) A computer readable medium containing instructions for characterizing a coded object having a first region, the first region having a first subregion having a first color and a second subregion having second color that differs from the first color, wherein the first subregion is movable over a portion of the second subregion, the computer readable medium comprising:

computer code for comparing the first regions luminosity values at a plurality of positions and defining the first subregion's position as the position of the minimum luminosity value within the first region when the second subregion has a white color; and

computer code for comparing the first regions luminosity values at a plurality of positions and defining the first subregion's position as the position of the maximum luminosity value within the first region when the second subregion has a black color.

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61. (New) A computer readable medium containing instructions for characterizing a coded object having a white region and a black region, the first and second regions being substantially adjacent, an object being partially within the first region and partially within the second region, the object portion within the first region being white, the object portion within the second region being black, the computer readable medium comprising:

computer code for subtracting luminosity values of the white region from luminosity values of the black region at a plurality of positions; and

computer code for defining the object's position as the position of the luminosity value pair that has a minimum difference.

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62. (New) A computer readable medium containing instructions for characterizing a coded object having a first region and a second region, the first region a majority of subregions with a first color and the second regions having a majority of subregions with a second color that differs from the first color, the computer readable medium comprising:

computer code for (a) comparing luminosity values of a selected subregion within the first region to each subregion within the second region;

computer code for (b) when a number of luminosity values of the subregions within the second region differ from a luminosity value of the selected subregion by more than a predetermined value, defining the selected subregion as a reference subregion; and

computer code for (c) when a number of luminosity values of the subregions within the second region does not differ from a luminosity value of the selected subregion by more than a predetermined value, selected a next subregion within the first region and repeating steps (a) and (b) if there is a next subregion within the first region.

Please cancel claims 1-30.